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ABSTRACT

The focus of this paper is the combination of oral and written response and technology, the components that form electronic feedback, and their possible benefits to business. The paper proposes that Web writing applications can provide numerous benefits to businesses and increase the communication and management of that communication. With the development of online writing environments, Internet browsers are developing into a new form of information sharing. In the past, the mode of communication and information sharing was via email, chat rooms and special meeting software. The sharing of information was also achieved via discussion groups-a special system that displays information via Internet browsers. These discussion groups contained long lists of comments that are beneficial, but difficult to navigate through and often requires searching for key words and rummaging through pages of comments that may or may not be relevant. Internet based writing environments have been in existence for several years, but their development is only beginning. A new online writing environment, eDRAFT provides opportunities for instructors to quickly and easily setup their course to display student writings online and provides an avenue for others to respond to the writings. The responses entered, via the browser, are sent via email and the writings after receiving e-feedback. The system is password protected and, therefore, prevents everyone but the writer and instructor from modifying writings. The entire system creates a new mode for sharing information and comments online. This new e-community is an environment for writers and readers where they can develop their ideas and react of the work of their peers. (Contains 54 references.) (Author/AEF)

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Sharing the Knowledge: Browser Based Writing Business Applications

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Abstract

With the development of online writing environments, Internet browsers are developing into a new form of information sharing. In the past, the mode of communication and information sharing was via email, chat rooms and special meeting software. The sharing of information was also achieved via discussion groups – a special system that displays information via Internet browsers. These discussion groups contained long lists of comments that are beneficial, but hard to navigate through and often requires searching for key words and rummaging through pages of comments that may or may not be relevant. Internet based writing environments have been in existence for several years, but their development is only beginning to be developed. A new online writing environment, eDRAFT, (http://www.tuzidesign.com/edraft/) provides opportunities for instructors to quickly and easily setup their course to display student writings online and provides an avenue for others to respond to the writings. The responses, entered via the browser, are sent via email and the writings are stored in a database. Writers also have the ability to modify their writings after receiving e-feedback. The system is password protected and, therefore, prevents everyone but the writer and the instructor from modifying writings. The entire system creates a new mode for sharing information and comments online. This new e-community is an environment for writers and readers where they can develop their ideas and react to the work their peers.

Introduction

A new form of feedback is emerging with the expansion of the Internet. Electronic feedback (e-feedback) advances the concepts of oral and written response into the electronic arena. The advances accomplished by the merging of communication and technology can provide great benefits to business. Initially, our focus was on education and technology – how web application can assist in developing community among students and instructors. But this focus shifted to the business sector and how web writing applications can increase communication effectiveness as well as organize and

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manage the information generated by business projects.

Our focus in this paper is the combination of oral and written response and technology, the very components that form electronic feedback, and their possible benefits to business. We propose that web writing applications can provide numerous benefits to businesses and increase the communication and management of that communication.

Background

The origin of this paper is rooted in composition and computer studies. As far back as the early 1980s composition writers have played with the idea of incorporating writing with technology.

Several researchers have discussed the benefits of developing peer response writing groups via email, chat rooms and electronic bulletin boards (Goodwin, Hamerick, & Stewart, 1993; Sullivan, 1993). But these types of programs were not specifically designed for collaborative writing. Email programs, for example, were designed to develop and send mail electronically, not for collaborative writing. Their initial function was electronic mail with electronic post offices and they are still used in that capacity. This is not to say that email programs don't have some advantages for L2 writing (Sperling, 1997). But that is not what they were designed for.

Warschauer, the most prolific writer on technology and L2 writing, has conducted research revealing a number of benefits for incorporating collaborative writing technology to L2 writing. One benefit was increased participation. Whereas 30% to 40% of students participated in face-to-face peer response, there was an 80%-100% participation ratio with electronic discourse (Warschauer, 1996; Sullivan and Pratt, 1996). At the same time the role of the teacher decreased and her position as teacher was transformed at times to that of another voice in the online discussion. Finally, students used more formal language in an electronic environment (Warschauer, 1996b).

In summary, collaborative writing technology increases the amount of student participation, reduces the role of the teacher, increases the students writing practice time, and provides multiple and redundant responses for students. Collaborative writing technology also may not be a benefit for all L2 writers especially the more advanced writers who receive little quality comments from their peers.

The number of collaboration applications is not very big; however, the amount and quality of the software are improving. The first major package developed in the late 80s was the Daedalus project (1989). Daedalus allows students to do prewriting activities, participate in real-time conferencing, and post responses on electronic bulletin boards. A more sophisticated program is Commonspace from Sixth Floor Media, which allows users to create write and draft in a column of the screen. One benefit of Commonspace is that users can add multiple columns on-screen for attaching comments and voice annotations right next to the original document. Another plus for Commonspace is that it can be used on a local network, or through the Internet allowing L2 writers from any distance to collaborate on their writing. A recently developed package, Connect Textra by Norton & Company (1999), works in conjunction with Microsoft Word (2000) to allow teachers and students to read students' writings, post or embed responses, create or join real-time response groups, send

personal or global messages, and edit their own writing. A big advantage to this system is that setting up the program is free for the university or teacher. Students do have to pay a one-time fee to receive an access ID, and then they can take an unlimited number of classes using this software.

Other web based environments also exist. For example, The College Writing Peer Response Project (CWPRP)(1999) was a website dedicated to collaborative writing that allowed anyone on the Internet to read students essays and respond to them using an electronic mail form. The obvious advantage with this project is that the materials are online and accessible from anywhere the Internet is available. Another web based environment is WebCT, a web application designed to assist instructors ion developing a web course.

Although these collaboration environments are worthwhile programs and might serve the purposes of business, a number of factors might encourage clients to reject them for use in business collaboration. One consideration was cost. Some programs like WebCT cost upwards of $3500 per year to purchase a site license. Other packages like Commonspace require a copy of the software be placed on every computer that will access the program and cost almost $100 per copy. Another consideration was the ease of use. Some environments like the CWPRP and Textra require additional computer expertise that typical L2 writers and instructors lack. TBCW software packages that included special setup for teachers or administrators also discouraged me from selecting them.

An important determiner for selecting software was whether the mode of communication was synchronous or asynchronous. Synchronous or real-time communication re-introduces the pressure for a quick response, and encourages students to provide "shoot from the hip" responses instead of a more contemplative, thought through response. Thus, systems like Daedalus that incorporate synchronous response as the primary mode of e-feedback were not considered for this project.

The Developed Web Application

The web application, code named Awe-som, required almost no technical skills for the users, and was entirely browser based. The website application that was developed used a number of technologies and servers. Table 1 lists the components used to develop the web writing application.

TABLE 1.

Server Side Components		
Apache HTTP Server	Linux OS	MySQL Database Server
PHP	JavaScript	HTML

The backbone of AWE-som was the operating system and the two servers. The PHP programming language was used to create the interface between the Internet site visitors. Each course that that instructors added to the site would receive its own web page as shown in figure 1. The menu at the top of every page allowed

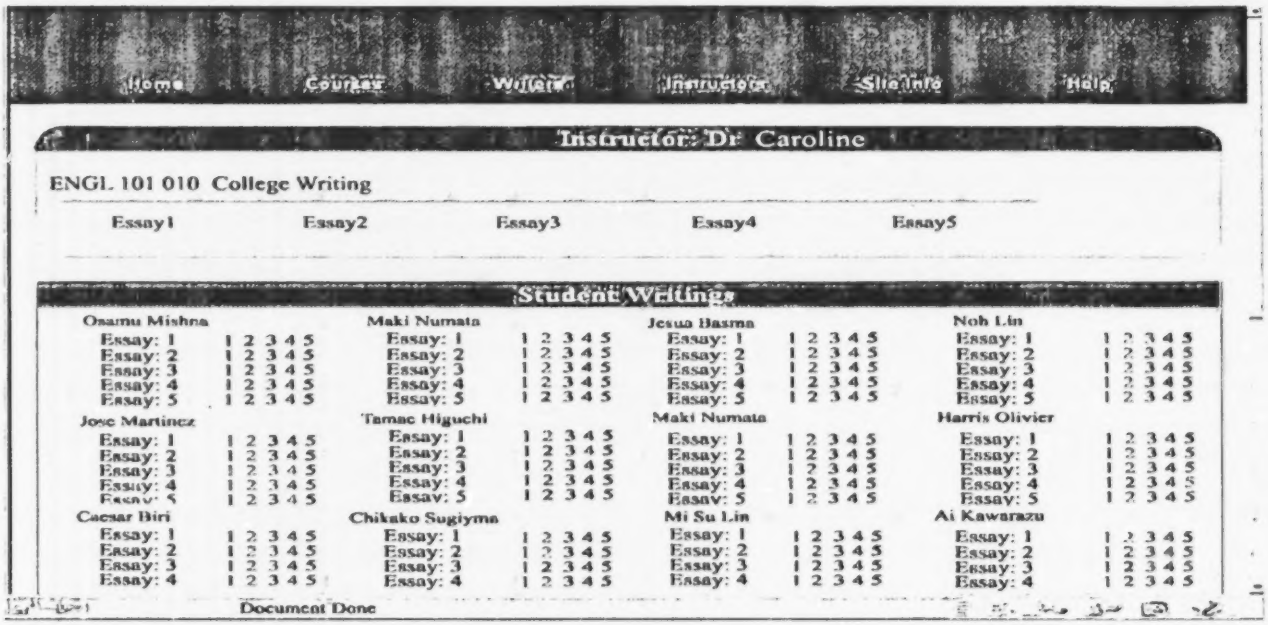
Home
Courses
Writers
Instructor
Site Info
Help
Instructor: Dr Caroline
ENGL 101 010 College Writing
Essay1
Essay2
Essay3
Essay4
Essay5
Student Writings
Osamu Mishna
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Essay: 5 1 2 3 4 5
Maki Numata
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Essay: 5 1 2 3 4 5
Jesua Basma
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Essay: 5 1 2 3 4 5
Noh Lin
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Essay: 5 1 2 3 4 5
Jose Martinez
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Tamae Higuchi
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Maki Numata
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Harris Olivier
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Caesar Biri
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Chikako Sugiyma
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Mi Su Lin
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Ai Kawarazu
Essay: 1 1 2 3 4 5
Essay: 2 1 2 3 4 5
Essay: 3 1 2 3 4 5
Essay: 4 1 2 3 4 5
Document Done

Figure 1. Sample page of a course web page.

clients and the data in the database. PHP created dynamic pages and ensured that the entire web application was password protected.

The process for using this web application required a few simple steps. First the instructor would sign up as a user by filling out a dataform. Once accepted into AWE-som, the instructor created a class and populated it with student ID numbers. Second, the instructor would guide her students to the AWE-som website and have them sign up by filling out a dataform at the website. Once the students had signed up they could post drafts of papers to the website and receive comments from the web students to post new documents, revise old documents, check their personal statistics and modify their profile. An instructors panel gave instructors the ability to add or modify courses, students and documents posted for all the course they were responsible for. Additionally, anyone coming to the site could read and respond to the document in each class. So students were in a sense publishing their documents on the Internet and the audience was responding to what they were reading.

Exporting Collaborative Document Sharing to the Business Sector

Clearly web based writing has advantages for the educational community by expanding the audience, motivating the students, developing time and space independent course components, and decentralizing the classroom. But this technology can have a great impact in the business sector as well. There are a number of areas in business that can benefit from the merging of collaboration and technology.

Project Management

Communications is intertwined in a complex fashion in industry. Without good lines of communication relational aspects of business can break down between customers, employees and management. One of the most difficult aspects of any project, especially technical projects, is to foster is effective communication. "When leaders don't communicate technology strategies and anticipated benefits or underestimates the impact to the organization, projects may go wrong or fail to achieve intended business results. (Averet, 2001).

Achieving effective communications often involves asking questions. The types of questions that might be asked could be, do people understand? Do people explain or ask? Do people listen? Perhaps the most important question to ask is do people document? Sadly this may be the question that is the least asked. Lack of documentation is a sad state of affairs because good documentation techniques provides; a permanent record of what is understood, forces an organization of materials in a coherent manner, and aids in resolving misunderstandings (Burrill & Ellsworth, 1986).

In the science of project management documentations is part of the project file or workbook. Simply put the project workbook is a structure or classification for project documentation (Burrill & Ellsworth, 1986). As documents are created they are filed in the appropriate section of the project workbook. As revisions are made new copies are added to the workbook. It is imperative that original are not removed to preserve the history of the project. A sample of what a project workbook might contain might be something like the following (Burrill & Ellsworth, 1986):

Project Documentation

1. Enabling documents\
   a. DP Project Proposal Statement of
   b. Funds allocation
   c. Work Authorization
   d. Work Assignments
   e. Resources
      i. Organizational data
      ii. Personnel Data
   f. Plans
      i. Project Plans
      ii. Phase Plans
   g. Reports
      i. Weekly Time
   h. Change History
2. Products and Product Documentation
   a. Requirements
   b. System Descriptions
3. Accounting and Administration
   a. Administration
      i. Rules for work, travel, etc.
      ii. Reports
   b. Accounting
      i. Standard cost data
      ii. Budgets
4. Correspondence
   a. Users
   b. Audit
   c. Systems and Procedures
5. Glossary
   a. All terms unique to the project

It is obvious from the sample table of contents that projects generate paper. Web Writing Environments (WWE) like Advanced Writing Environments- (AWE-some) could be used for or as part of the Project Workbook. There are several characteristics of the Project Workbook that are preserved by WWEs. These characteristics include; Standardization, Availability, Distribution, Security, and Documentation Identification. WWEs aid in standardization by providing a central place to publish reports, procedures and other information a project team might need. Because the web is accessible from any Internet connection and always available, project team members can gain access to materials 24 hours a day, 7 days a week. WBWE also provide a central location from which to distribute documents. With the use of email and chat technologies these environments provide a central repository for discussion and contact. Security is vital to many projects. WWEs can be configured with group permissions so that only those who need the information are permitted access. The can also be set up with password projection or IP access only. Documents identification is another important project workbook characteristic. WWEs have the means to date and time stamp all files. This prevents lost work on items that have already superceded. It also provides a history of the progression of the project by date.

The current state of Web Based Project Collaboration Tools often preserve many of the project workbook characteristics in their shared elements. These shared features are calendars, project folders, and discussion forums. However most web tools seem to fall into two categories. These systems are either affordable but have some sort of limiting factor or are to pricey to even consider. In a recent review by Freedman, it was found that collaborative tools like OnProject work well and are affordable. OnProject charges $20 for up to 20 users. However, at this level a number of limiting factors exist. Freedman found that OnProject's rudimentary discussion features resemble the discussion threads of first-generation web sites. If OnProject represents the Chevrolet of collaborating tools Freedman found ERoom to be the Cadillac. ERoom charges a monthly fee of $249 for up to 10 user and $599 for up to 40 users. ERoom offers very complete templates for project management and tools for project development, human resources, and customer user group forms. This level of a collaborative tool is designed for large organizations with extensive needs and that can handle the large price tag.

Web Based Customer Relations Management

Not only can WWEs be effectively incorporated into the realm of project management, WWEs have potential business applications in customer relations management (CRM). Customer Relationship Management often involves the following (Zimmerman, 1999):

- Understand key customer groups and establish long-term relationships with them.
- Identifying customer groups to target for new or add-on sales.
- Define products and services to meet your customers' needs.
- Increasing company sales while improving customer satisfaction.
- Optimize delivery channels.
- Monitor and review customer response efforts.

Can the elements that Zimmerman points out transition to the internet? Norton expresses the opinion that experts agree that the marriage of web-based technologies with CRM makes sense. (Norton, 2001) The natural evolution of CRM is e-CRM or electronic Customer Relationship Management allows customers to reach organizations by new and expedient means . e-CRM will open many new doors, but will industry be able to take advantage of this new technologies. Close estimates that through 2004 only 35% of enterprises will be able to define the cost and benefits from their CRM strategies. Close also denotes that in the same 2004 time period that 55% of e-CRM initiatives will fail to meet measurable benefit objectives. (Close, 2000) One aspect of increasing benefits of e-CRM begins with understanding what defines a e-CRM system. There are several components to a e-CRM definition. These includes: e-commerce sell-side which involves order placement, catalog content, and secure transmission of data; the communications infrastructure that entails, chat/browser technology, multilingual support, and web measurement tools, and finally CRM applications. The applications comprise product/price configuration, customer service and technical support. Understanding what makes up a e-CRM system is only part of it. Enterprises must also understand that e-business cannot be successful with out e-service. Amuse and several colleagues reviewed the 8 principles of e-service recommended by Gartner. Gartner recommends (Amuse, Ferrara, Fluss & Hager-Duncan, 2001):

1. Help mechanisms that are easy to find.
2. Search engine for questions.
3. FAQ's and customer response.
4. Accurate and timely info.
5. Send/receive email.
6. Acknowledge receipt of email.
7. Integrate phone and email channels.
8. Access to live help.

Two examples of how WWEs might meet the need of e-CRM through e-service principles. Interactive FAQ's are one means by which customers can find information and get help. AWE-some could be such an interactive FAQ. Customers would read the FAQ and post questions or comments. To reassure customers that their question has been received an automated response could be sent. The enterprise would have the responsibility to respond to the customers questions in a predetermined amount of time.

Garter's 4th principle of e-service emphasizes the fact that today customers need accurate and timely information. A product like AWE-some could be constructed to be an e-learning or certification instrument. Through WWEs companies would create product content that would be delivered to the customer or partnered vendors. The content could consist of description of products, technology topics, Q&A about the product or topic, and reinforcement. The customer could post or answer questions to assess their product or technology topic knowledge level . The companies could answer posted questions, or report results to the customer on evaluation of their knowledge. AWE-some is already build in such a fashion that is could be use for open discussion among customers either on a one to one or group basis. Finally if reinforcement of a topic is need based on customers reaction, the customer could be moved back into a content mode. Using WWEs for e-learning helps to give employees accurate and timely

information on changing technology while reducing training costs.

Web Based Document Sharing and Collaboration

The final area that WWEs might benefit business is in the realm of collaborative document collaboration (CDC). CDC involves a number of people working together in the creation of a document. Just like the students who worked together by submitting responses to each others posted essays, business and research projects that have multiple authors working on a document can benefit from an WWE.

There are a number of advantages that WWEs offer business who are developing documents at a distance. Typically, shared documents are sent between parties via email attachments or even hard copies, and comments are embedded or written along side of the original comments. Two problems exist in these scenarios. First, the sending and receiving of email attachments requires that a common application be used to do the actual writing and revising. For example, many people use WS Word. That is convenient provided everyone is using the same application and using the same version. When uniformity does not exist, conversions can make file sharing more difficult. Using a WWE eliminates that problem. Since the WWE is the application and everyone has access to that application, there is no need for conversion.

Second, embedding comments in the original document can make the reading of the document more confusing. But in a WWE, there is no embedding involved. Comments can be sent via email or some more secure method. Nationally, sending documents via email is inherently insecure. Business considering participating in CDC should avoid email

How CDC is Completed

There are a number of ways that CDC might be useful. But for brevity sake, I will present two scenarios here. One example of CDC might involve a group of people preparing a paper for a presentation that includes five members. All members live a distance form the other group members. Each member is responsible for a section of the document to be submitted. In this scenario, the leader of the group would create a secure class in the WWE and include all of the presentation members as students. Next the members can post their documents to the Internet database so that others in the group can read and respond to the paper sections. After receiving responses from the others in the group, each member can update their document, and then post the revision in order to receive more comments. When the group is satisfied with the final versions of the paper sections, the teacher collects all of the sections and ports them into a single document.

In this scenario, the participants use the WWE to post their sections, receive responses, update their sections, and submit the final version for inclusion in the completed paper. Additionally, no conversion problems existed, and no unwanted parties could read the contents of the documents.

Another scenario might include one main writer who is collecting comments from a number of readers. For example, a lawyer is creating a document of agreement between two parties. The lawyer can post the document on the Internet database in a "secure" area and allow the parties access to

read and respond to the document. The parties will make suggestions for additions, deletions, and permutations, which the lawyer would make. He would then post the revision and start the process over again. This would continue until the parties involved were satisfied with the results.

Conclusion

It is evident that AWE-some could be configured to be an affordable and easy to use WBPCT. Since AWE-some is based on Open Source technology it is extremely affordable. Open Source programs are usually free. Being a web based product AWE-some preserves the project workbook need for standardization, availability and distribution. AWE-some has the capability for password protection and other security features. With AWE-some files are dated and time-stamped thus preserving by date the progression of the project. Using AWE-some as an e-leaning vehicle creates an accurate and timely means with which to deliver product and topical information. This would provide greater productivity and increased profitability.

One caveat to this study is the issue of security on the Internet. Every precaution should be done to ensure that critical data not be exposed to the Internet without encryption and password protection at the very least. A web application must have incorporated into it and into the server on which it is running, a security and detection system to prevent loss of critical data. If such a system does not exist, then companies should implement them. Maintaining the integrity of the data is just as important to WWE as ease of use and accessibility. WWE by themselves are easy to use since they only require a standard browser, and they are accessible since they are on the Internet. When developing a WWE, ensure that adequate security measures are also part of the design of the system as the AWE-som system has.

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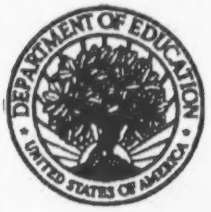

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